Claims

1. A method of manufacturing a zinc-coated electrode wire for electro discharge machining using a hot dip galvanizing process, the method comprising the following steps of:

firstly surface-forming a wire so that a terminal end of the wire is tapered while the wire is drawn through a first die;

pre-coating the firstly surface-processed wire with zinc by passing the wire through a molten zinc bath at a relatively slow speed;

main-coating the pre-coated wire with zinc, wherein the pre-coated wire is immersed in the molten zinc bath for a predetermined time to maintain the temperature of zinc pre-coated on the wire at a predetermined level, and is removed from the molten zinc bath and then passed through a sizing die preheated to 400°C before zinc coated on the wire is hardened, so that zinc coated on the wire has a predetermined thickness;

secondly surface-forming the main-coated wire by passing the wire through a heated pipe at a constant speed to raise a surface temperature of the wire to a predetermined level, and then passing the wire through a second die having a diameter of 5~10μm smaller than that

of the wire so that zinc is coated around the wire at a uniform thickness;

homogeneously heat-treating the secondly surface-processed wire in a closed space by hot air circulating therein; and

drawing the homogeneously heat-treated wire with a drawing ratio of 4~80 or higher by passing the wire through a third die made of natural diamond and having an inlet portion of 5μm across, a middle portion of 3μm across and an outlet portion of 1~3μm across to make the surface of the wire smooth, provided that the homogeneously heat-treated wire has a sectional area of 0.3~3mm^2.

2. The method as defined in claim 1, wherein, at the pre-coating step, the firstly surface-processed wire passes through the molten zinc bath heated to 440~500°C at a relatively slow speed of 30~40m/min when the wire has a sectional area of 0.3~3mm^2, so that the wire is immersed in the molten zinc bath for 1~2 sec.

3. The method as defined in claim 1, wherein, at the main-coating step, the pre-coated wire passes through the molten zinc bath heated to 430~480°C at 50~70m/min so that the wire is immersed in the molten zinc bath for 1~2 sec.

4. The method as defined in claim 1, wherein, at the secondly surface-forming step, the main-coated wire passes through the pipe heated to 400°C at 30~50m/min, so that the surface temperature of the wire reaches 250`350°C.

5. The method as defined in claim 1, wherein, at the homogeneously heat-treating step, the secondly surface-processed wire is heated by the hot air of 120~180°C circulating at 10~20m/sec in the closed space.